

TITLE of the INVENTION

"Methods and devices for decoding
one-point algebraic geometric codes"

TEXT of the ABSTRACT

The present invention relates to a method of decoding a one-point algebraic geometric code of dimension k and length n , in which, in order to identify the position of the errors in a received word, the syndromes matrix S , of size $(n-k) \times (n-k)$, is defined, of which the elements S_{ij} of each line i are calculated, for j between 1 and $w(i)$, where the boundary w is a decreasing function, using the syndrome \underline{s} of the received word. According to the invention, matrices S^u are constructed for the successive values of u starting with $S^1 = S$, and, for $u > 1$, each matrix S^u is obtained by performing on the matrix S^{u-1} , column permutations where appropriate, then linear manipulations involving the line of index u . These steps are performed in such a manner as to find a matrix S^λ which has a line of index less than or equal to λ of which the elements are zero in the first $w(\lambda)$ columns. The invention also relates to devices and apparatuses adapted to implement this method.

Figure for the abstract: FIG. 4